

CLAIMS

We claim:

1. A client comprising:

a memory having an application and a data structure stored therein, wherein the data structure identifies positions of the compressed codestream on a server and identifies data of the compressed codestream already buffered at the client, if any;

a processor coupled to the memory to execute the application to generate a request for portions of the compressed codestream based on indications of which portions of the codestream are already stored in the memory as indicated by the data structure.

2. The client defined in Claim 1 wherein the processor creates a new codestream by integrating previously obtained portions of the compressed codestream within portions of the compressed codestream received as a result of the request, and the processor updates markers for the new codestream.

3. A system comprising:

a server to store a compressed codestream corresponding to image data; and

a client coupled to the server via a network environment, wherein the client includes a memory having an application and a data structure stored therein, wherein the data structure identifies positions of the compressed codestream on the server and identifies data of the compressed codestream already buffered at the client, if any, and further wherein the client requests bytes of the compressed codestream from the server that are not already stored in the memory and generates decoded image data requested by a user from the bytes of the compressed codestream requested from the server and any portion of the compressed codestream previously stored in the memory necessary to create the image data.

4. The system defined in Claim 3 wherein the portions of the compressed codestream are selected from a group consisting of packets, tile parts, and coded data segments from a codebook.

5. The system defined in Claim 3 wherein, when executing the application, the client

- determines image characteristics that a user requests,
- selects data of a compressed codestream that corresponds to the image characteristics,
- determines data of a compressed codestream that corresponds to the image characteristics that is not already buffered at the client,
- issues requests to the server to obtain the data of a compressed codestream that corresponds to the image characteristics that is not already buffered at the client,
- integrates data received from the server with any previously buffered data of the compressed codestream that corresponds to the image characteristics,
- decodes the data of the compressed codestream that corresponds to the image characteristics, and
- displays an image corresponding to the decoded compressed codestream.

6. The system defined in Claim 3 wherein the server serves byte requests.
7. The system defined in Claim 3 wherein the client further comprises a software decoder, and the client creates the compressed codestream for the software decoder by integrating bytes requested with previously obtained bytes.
8. The system defined in Claim 3 wherein the client determines the location and length of each packet.
9. The system defined in Claim 8 wherein the client requests a headerlength of a compressed file from the server that includes one or more file format boxes and a main header of the codestream box from which the client determines the location and length of each packet.
10. The system defined in Claim 9 wherein the main header includes two marker segments indicative of a byte map to every packet.

11. The system defined in Claim 10 wherein the two marker segments comprise the TLM and PLM marker segments.
12. The system defined in Claim 9 wherein the server comprises a script that streams only requested bytes to the client that are in a range specified in the request.
13. The system defined in Claim 3 wherein the compressed codestream comprises a JPEG 2000 codestream.
14. A method for processing image data by a client, the method comprising:
 - determining image characteristics that a user requests;
 - selecting data of a compressed codestream that corresponds to the image characteristics;
 - determining data of a compressed codestream that corresponds to the image characteristics that is not already buffered at the client, wherein determining the data comprises using a data structure that identifies

positions of portions of the compressed codestream on a server and that identifies data of the compressed codestream already buffered at the client;

issuing requests to the server to obtain the data of a compressed codestream that corresponds to the image characteristics that is not already buffered at the client;

integrating data received from the server with any previously buffered data of the compressed codestream that corresponds to the image characteristics;

decoding the data of the compressed codestream that corresponds to the image characteristics; and

displaying an image corresponding to the decoded compressed codestream.

15. The method defined in Claim 14 further comprising the server serving byte requests.

16. The method defined in Claim 14 further comprising compiling the compressed codestream for a software decoder on the client.

17. The method defined in Claim 14 further comprising determining the location and length of each packet.
18. The method defined in Claim 17 further comprising requesting a headerlength of a compressed file from the server that includes one or more file format boxes and a main header of the codestream box from which the client determines the location and length of each packet.
19. The method defined in Claim 18 wherein the main header includes two marker segments indicative of a byte map to every packet.
20. The method defined in Claim 19 wherein the two marker segments comprise the TLM and PLM marker segments.
21. The method defined in Claim 14 wherein the compressed codestream comprises a JPEG 2000 codestream.

22. An article of manufacture having one or more recordable media having executable instructions stored thereon which, when executed by the system cause the system to:

determine image characteristics that a user requests;

select data of a compressed codestream that corresponds to the image characteristics;

determine data of a compressed codestream that corresponds to the image characteristics that is not already buffered at the client, wherein determining the data comprises using a data structure that identifies positions of portions of the compressed codestream on a server and that identifies data of the compressed codestream already buffered at the client;

issue requests to the server to obtain the data of a compressed codestream that corresponds to the image characteristics that is not already buffered at the client;

integrate data received from the server with any previously buffered data of the compressed codestream that corresponds to the image characteristics;

decode the data of the compressed codestream that corresponds to the image characteristics; and

display an image corresponding to the decoded compressed codestream.

23. The article of manufacture defined in Claim 22 further comprising instructions which, when executed by the system, cause the system to create the compressed codestream for a software decoder on the client.

24. The article of manufacture defined in Claim 22 further comprising instructions which, when executed by the system, cause the system to determine the location and length of each packet.

25. The article of manufacture defined in Claim 24 further comprising instructions which, when executed by the system, cause the system to request a headerlength of a compressed file from the server that includes one or more file format boxes and a main header of the codestream box from which the client determines the location and length of each packet.

26. The article of manufacture defined in Claim 25 wherein the main header includes two marker segments indicative of a byte map to every packet.

27. The article of manufacture defined in Claim 26 wherein the two marker segments comprise the TLM and PLM marker segments.

28. The article of manufacture defined in Claim 22 wherein the compressed codestream comprises a JPEG 2000 codestream.

29. A method comprising:
receiving requests for a codestream for a JPEG 2000 image;
converting requested information to JPEG DCT compression; and
sending converted requested information using the Internet Imaging Protocol (IIP).

30. A method comprising:
providing information to enable a client to determine image size and
a maximum number of resolutions;

receiving a request for one or more tiles of a codestream of compressed data; and

parsing the codestream of compressed data to locate packets related to the request, including packets for a requested tile at a resolution less than or equal to the resolution requested and all layers.

31. The method defined in Claim 30 wherein packets located as a result of parsing includes all packets for a requested tile at a resolution less than or equal to a resolution requested and all layers.

32. The method defined in Claim 30 where the information comprises an HTML document.

33. The method defined in Claim 30 where the information comprises an XML document.

34. A system comprising:
a client

a server coupled to the client via a network environment, the server to store a compressed codestream corresponding to image data, wherein the server provides information to enable a client to determine image size and a maximum number of resolutions, receives a request for one or more tiles of a codestream of compressed data, and parses the codestream of compressed data to locate packets related to the request.

35. The system defined in Claim 34 wherein the request system includes component, layer and precinct information.

36. The system defined in Claim 34 wherein the request syntax is as follows:

TIL = resolution, component, layer, precinct, tile.

37. The system defined in Claim 34 wherein the layer is a JPEG 2000 layer and the precinct is a JPEG 2000 precinct.

38. The system defined in Claim 34 wherein one or more variables in the request syntax is represented using a wildcard.